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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/930,958	08/17/2001	Vishnu K. Agarwal	M4065.0151/P151-B	2289

24998 7590 11/04/2002

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EXAMINER

DOAN, THERESA T

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 11/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/930,958

Applicant(s)

AGARWAL ET AL.

Examiner

Theresa T Doan

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 55-123 is/are pending in the application.
- 4a) Of the above claim(s) 63-123 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 55-60 is/are rejected.
- 7) ☒ Claim(s) 61-62 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I (claims 55-62) in Paper No. 5 is acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 55-57 are rejected under 35 U.S.C. 102(e) as being anticipated by Okutoh et al. (6,180,974).

Regarding claim 55, Okutoh et al. teach in figure 1 a memory cell, comprising:
a substrate 21;

a transistor including a gate 22 on the substrate and a source/drain region (23/24) in the substrate disposed adjacent to the gate;

a capacitor comprising an electrode having a platinum-rhodium layer 28 and a platinum layer 30 on top of the platinum-rhodium layer, wherein the electrode has a lateral surface aligned with the source/drain region; and

a conductive plug 27 providing electrical contact between the source/drain region 24 and the lateral surface of the electrode.

Regarding claim 56, Okutoh et al. teach wherein the platinum-rhodium layer 28 comprises an alloy of approximately 3 to approximately 40 percent rhodium and approximately 60 to approximately 97 percent platinum (column 32, line 57).

Regarding claim 57, Okutoh et al. teach the platinum-rhodium layer 28 has a thickness of 100 to 500 Angstroms (column 8, lines 46-47).

4. Claims 55-57 are rejected under 35 U.S.C. 102(e) as being anticipated by Okutoh et al. (6,201,271).

Regarding claim 55, Okutoh et al. teach in figure 8 a memory cell, comprising:
a substrate 1;

a transistor including a gate (3,4) on the substrate and a source/drain region 5 in the substrate disposed adjacent to the gate;

a capacitor comprising an electrode having a platinum-rhodium layer 21 and a platinum layer 22 on top of the platinum-rhodium layer, wherein the electrode has a lateral surface aligned with the source/drain region; and

a conductive plug 19 providing electrical contact between the source/drain region 5 and the lateral surface of the electrode.

Regarding claim 56, Okutoh et al. teach wherein the platinum-rhodium layer 21 comprises an alloy of approximately 3 to approximately 40 percent rhodium and approximately 60 to approximately 97 percent platinum (column 9, lines 4-5).

Regarding claim 57, Okutoh et al. teach the platinum-rhodium layer 21 has a thickness of 300 Angstroms (column 8, lines 63-64).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 58-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okutoh et al. (6,201,271).

Regarding claim 58, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the platinum layer has a

thickness within the range of about 50 to about 150 Angstroms in Okutoh et al.'s device, since it is a matter of design choice within the skills of an artisan, subject to routine experimentation and optimization.

Regarding claim 59, Okutoh et al. teach in figure 8 a platinum-rhodium layer 20 beneath the platinum-rhodium oxide layer 21 as a diffusion barrier to prevent oxygen film (column 8, lines 33-34). Although Okutoh et al. do not explicitly show in figure 8 that the electrode further comprises a titanium layer beneath the platinum-rhodium layer. Figure 1 of Okutoh et al. depicts the titanium layer 8 beneath the platinum-rhodium layer in order to reduce the oxide film (column 5, lines 10-11). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to substitute the titanium layer 8 of figure 1 for the platinum-rhodium layer 20 of figure 8 in Okutoh's device for the reason shown.

Regarding claim 60, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the titanium layer has a thickness within the range of about 60 to about 100 Angstroms in Okutoh et al.'s device, since it is a matter of design choice within the skills of an artisan, subject to routine experimentation and optimization.

Allowable Subject Matter

7. Claims 61-62 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Theresa T Doan whose telephone number is (703) 305-2366. The examiner can normally be reached on 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, WAEL FAHMY can be reached on (703) 308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

TD
October 24, 2002


PHAT X. CAO
PRIMARY EXAMINER